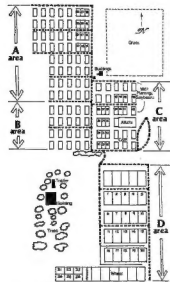




July 25, 1978 - The Sandhills Agricultural Lab, near North Platte. Photo taken by Bronson
This is where Bronson worked on his Masters and Ph.D. The work area, office and female employee trailer were located in the clump of trees in the right center of the photo.

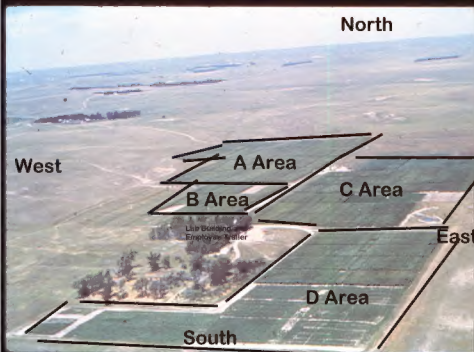


July 25, 1978 - The Sandhills Agricultural Lab, near North Platte. Photo taken by Bronson
This is where Bronson worked on his Masters and Ph.D. The work area, office and female employee trailer were located in the clump of trees in the lower center of the photo. The male housing was in the trees in the upper left of the photo.



University of Nebraska
Sandhills Ag. Lab. Solid Set Irrigation

Solid set irrigation area of the Sandhills Agricultural Laboratory showing plot locations



July 25, 1978 - The Sandhills Agricultural Lab, near North Platte. Photo taken by Bronson
This is where Bronson worked on his Masters and Ph.D. The work area, office and female employee trailer were located in the clump of trees in the lower center of the photo. The male housing was in the trees in the upper left of the photo.



1983 - Looking East .
B area (distance), C area (foreground)
A area (to the left). D area (behind the trees)



























1978 August 22 Brownson's ladder, with the infrared thermometer on top









1978 August 8. "D" area. Bronson's research plots
Note the gradient in height, caused by water stress.











July 19, 1976. Rob and John using the pressure bomb on corn.
Sandhills Agricultural Lab, Univ. of Nebraska, near North Platte.

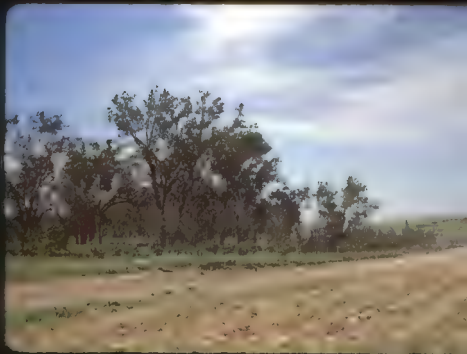




June 13, 1978. Looking east from D area
Bronson's crop.
Sandhills Agricultural Lab, near North Platte, Nebraska



June 13, 1978. Looking north from the south part of D area.
Bronson's Research ladder is visible in the center of the photo.
Sandhills Agricultural Lab, near North Platte, Nebraska

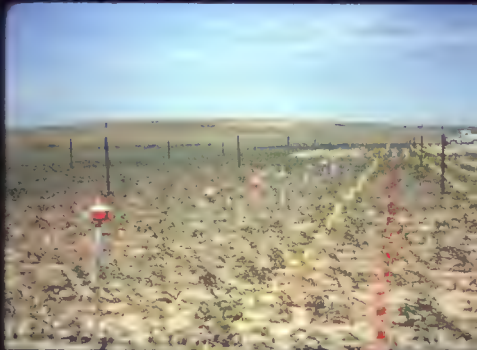


June 13, 1978. Looking north. The trees to the west of
the southern part of D area.
Sandhills Agricultural Lab, near North Platte, Nebraska



June 13, 1978. Looking north. The road separating D area (on the right) and C area (straight ahead) is visible just behind the tractor. Sandhills Agricultural Lab, near North Platte, Nebraska





1978 June 13 .Plot 22, looking east
Sandhills Agricultural Lab, near North Platte, Nebraska



1978 June 13 .Plot 22, looking east
Sandhills Agricultural Lab, near North Platte, Nebraska



1978 June 13 .Plot 2N, looking south - Sorghum
Sandhills Agricultural Lab, near North Platte, Nebraska



1978 June 3 . Bronson's Research Ladder
Sandhills Agricultural Lab, near North Platte, Nebraska









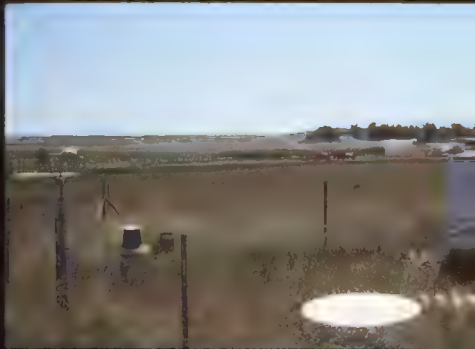


1979 - Bronson taking Infrared thermometer readings at the Sandhills Agricultural Lab, near North Platte (Univ of Nebraska).



1979 - Bronson taking infrared thermometer readings at the Sandhills Agricultural Lab, near North Platte (Univ of Nebraska).





1979 August 8. The weather station, looking south. The area with the trees is where our office building and employee trailer was located.



1979 August 8. The weather station, looking east.

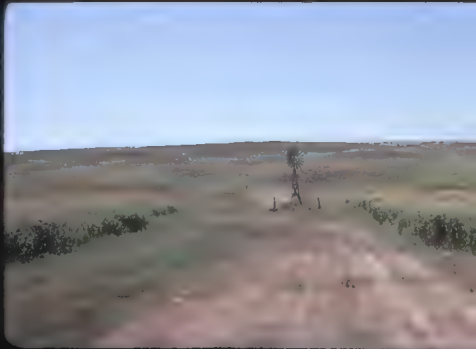




1979 August 8. The irrigation pump, looking south.
The trees in the distance are where our office and
employee trailer was located.







1979 August 8. The "A" area windmill, looking west.





1979 August 8. Bronson making thermal measurements
"D" area. Sandhills Agricultural Laboratory, near North Platte.





June 1981 - Preparing the instruments



Polycorders used for electronically recording data



June 1981 - Bronson at the Sand Hills Agricultural Lab



June 1981 - Blaine Bled - Bronson's Ph.D. advisor, Univ. of Nebraska

Bronson's Satellite Simulation equipment

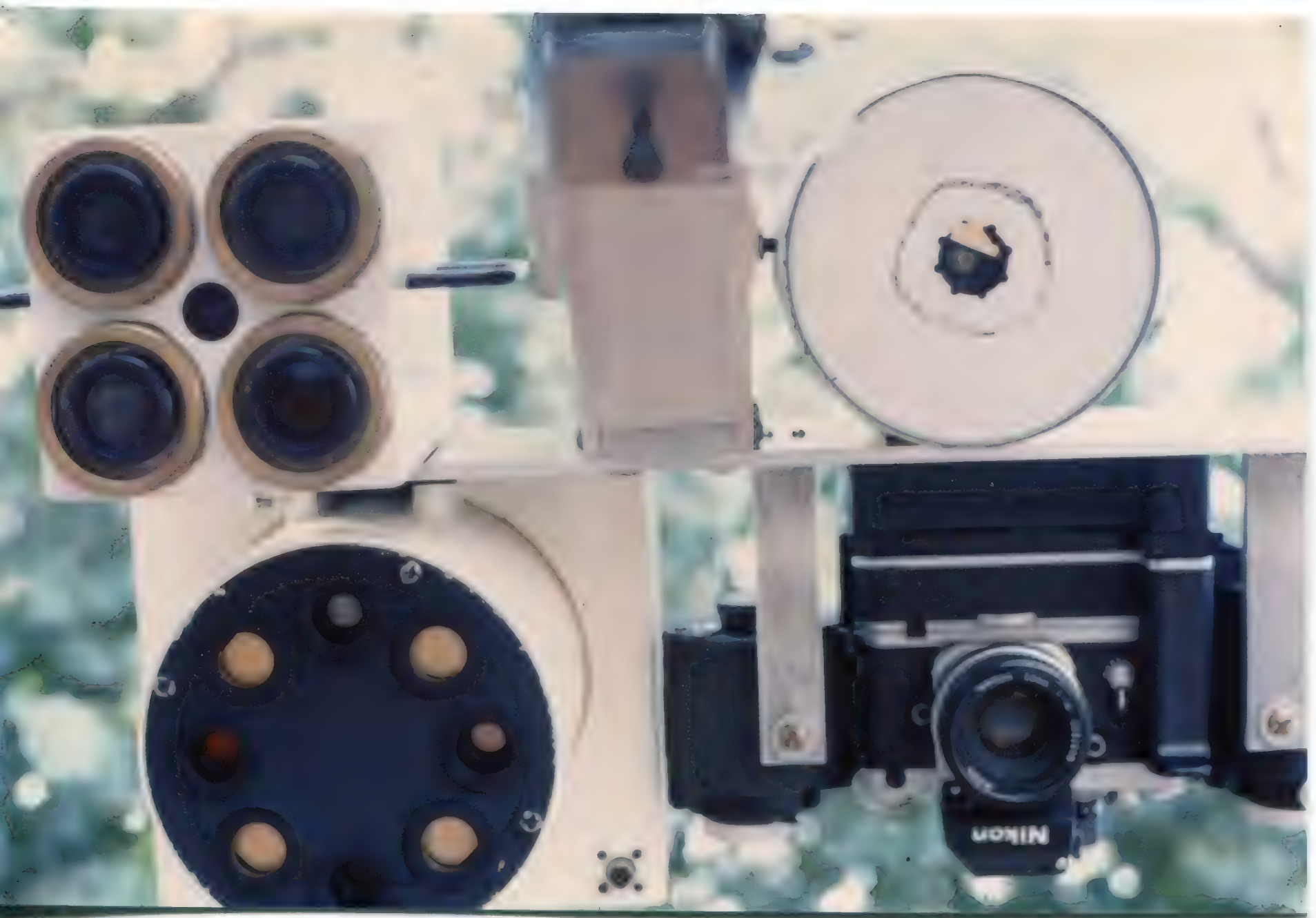
4 channel, 8 channel, Infrared thermoment, 35 mm Nikon camera











Brownson's Satellite Simulation equipment

4 channel, 8 channel, Infrared thermoment, 35 mm Nikon camera





Adjusting the instruments





1983 Bronson Gardner, (bald on top) preparing for calibration
Sandhill Agricultural Laboratory, near North Platte, Nebraska



1981 - June Bronson operating the instrument boom.



1981 - June Bronson operating the instrument boom.



1981 Bronson taking research data
Sandhill Agricultural Laboratory, near North Platte, Nebraska





Bronson's Ph.D. research project. Blaine Blad on top of the truck.
Bronson is driving.



August 1981 - Bronson's research truck. Blaine Blad on top, using an infrared thermometer. Bronson, driving the truck and controlling the data recorder.





August 1981 - Campbell Weather Station - "D" Area
Sandhills Agricultural Lab, near Tryon Nebraska



August 1982. Field Lab building is on the right. Temporary work trailer on the left.
Sandhills Ag Lab, near North Platte.



August 1982. Field Lab building is on the right. Temporary work trailer on the left.
Sandhills Ag Lab, near North Platte.





June 10, Mike -- a high school math teacher
The Sandhills Laboratory building is in the background.





June 10, 1960 Taking spectral measurements - Blaine Blad is on top, making adjustments
Sandhills Agricultural Lab - Bronson's "D" area. - Cindy Hays is driving



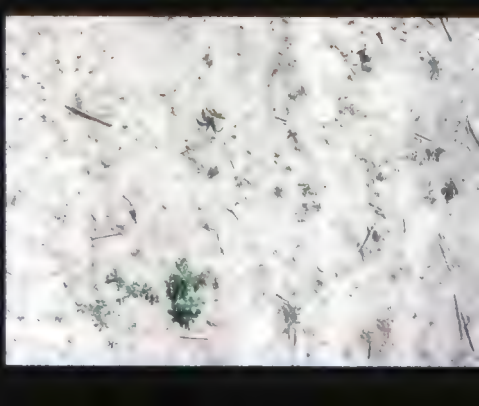
June 10, 1980 Howard Bryant - Taking measurements
Sandhills Agricultural Lab - Bronson's "D" area.



June 1981 - Bronson at the controls of the boom on the truck.

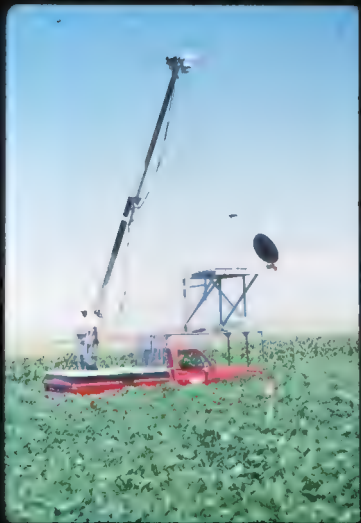


June 10, 1980 Bronson is starting to put instruments on the boom truck
The Sandhills Laboratory building is in the background.





**A, B, and C areas as seen, looking east. The tractor shed is in the left, middle of the photo.
Sandhills Agricultural Laboratory**



Sept. 1962. Taking measurements. Ramana Rao operating the boom,
Sankhills Agricultural Laboratory, near North Flete.



1982. The Lab building, and Cindy Hay's dog, Rosmer. The employee trailer is to the right. Sandhills Agricultural Laboratory, near North Platte.



1982. The Lab building, and Cindy Hay's dog, Roamer
Sandhills Agricultural Laboratory, near North Platte.



August 1982. Taking readings in "D" area.
Sandhills Agricultural Laboratory, near North Platte.
Blaine Blad on top, using the infrared thermometer

1932. Ramana Rao, with the research instruments. Employee Trailer in the background
Sandhills Agricultural Laboratory, near North Platte.





1982. 1982, Ramana Rao, seated, Blaine Blad (on car hood), the Lab Building and the Employee Trailer Sandhills Agricultural Laboratory, near North Platte.



1962. Looking west from "D" area.
Sandhills Agricultural Laboratory, near North Platte.

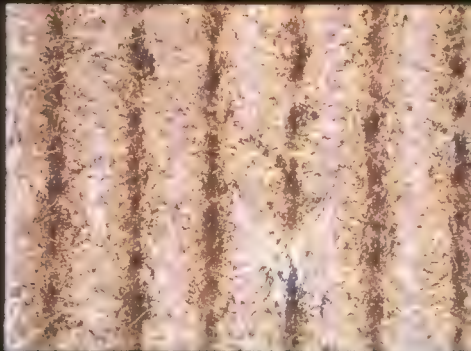


1962. Looking south from "D" area.
Sandhills Agricultural Laboratory, near North Platte.



1982. The work trailer, to the south of the Lab Building
Sandhills Agricultural Laboratory, near North Platte.







August 1982. Taking readings in "D" area.
Sandhills Agricultural Laboratory, near North Platte,
Blaine Blad on top, using the infrared thermometer



1962. August. Bronson's research boom truck. Looking from the west side of "D" area to the east. Sandhills Agricultural Laboratory, near North Platte.



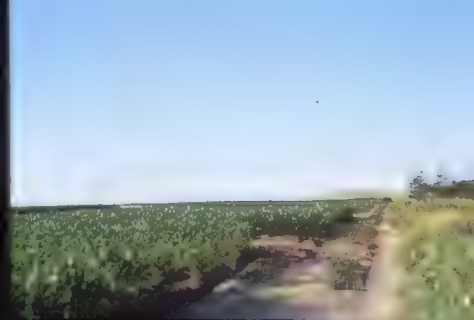
1982. August 8. The main irrigation pump
Sandhills Agricultural Laboratory, near North Platte.



1982. Looking south from the Lab building. One of the research trailers is on the right. Sandhills Agricultural Laboratory, near North Platte.



1982. Kirk Clewson - Pressure Bomb readings
Sandhills Agricultural Laboratory, near North Platte,



1982: "D" area, looking south
[Soil Science Agricultural Laboratory, near North Platte]



1982. Looking east at "D" area.
Sandhills Agricultural Laboratory, near North Platte.



1982. Looking east at "D" area, from the Lab building
Sandhills Agricultural Laboratory, near North Platte.



1982. Looking north-east at "C" area.
Sandhills Agricultural Laboratory, near North Platte.

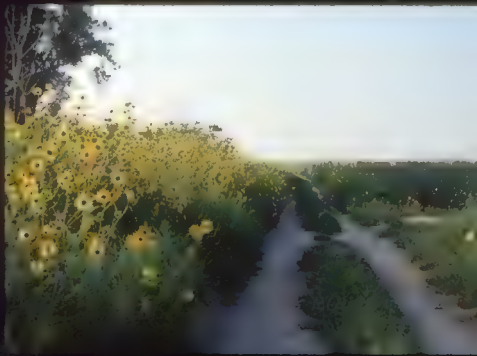


August 6, 1982. Blaine Blad - calibration the instruments using the berium sulfate calibration plate
Sandhills Agricultural Station, near North Platte



August 8, 1982. Blaine Blad - removing the lid from the barium sulfate calibration plate.
Sandhills Agricultural Station, near North Platte









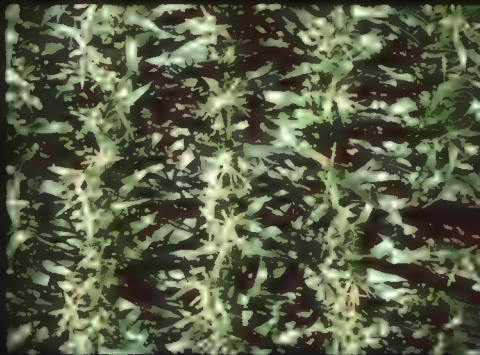


1962. August 8. "D" area "Dogleg" (the southern most part of "D" area.)
Sandhills Agricultural Laboratory, near North Platte.



1982, August 8. Looking north at "C" area.
Sandhills Agricultural Laboratory, near North Platte.







July 28, 1982 Bronson's Research Truck.

Sandhills Agricultural Laboratory University of Nebraska, near North Platte

Sattelite simulation: 8 channel, 4 channel, infrared thermomenter, 35 mm camera



July 25, 1982 Craig Daly (left) and Kirk Clawson



July 28, 1982 Cindy Hays (left), Ramana Rao, Blaine Blad
Sandhills Agricultural Station, near North Platte



July 28, 1982 Cindy Hays (left) and Ramana Rao
Sandhills Agricultural Station, near North Platte

July 28, 1982 Bronson, installing the sensor equipment

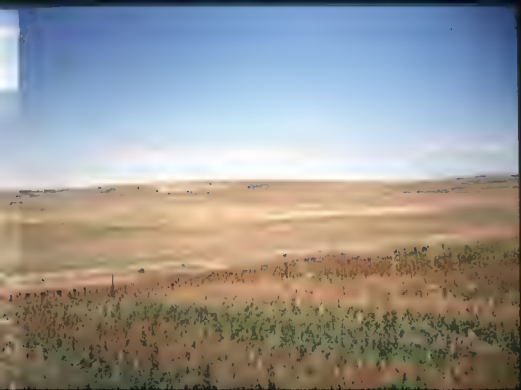


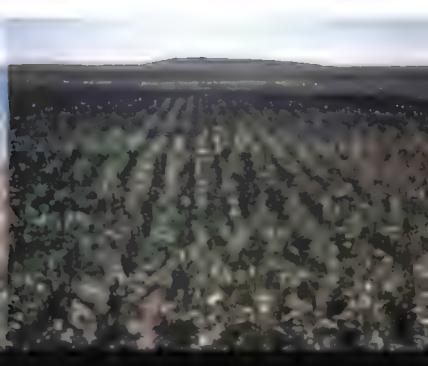


July 28, 1982 Blaine Blad (left) and Ramona Rao making adjustments



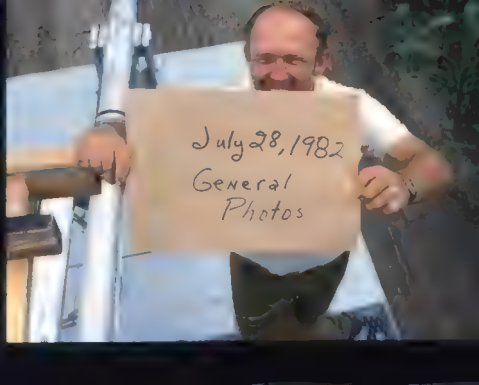
July 28, 1982 Bronson's Research Truck.
Sandhills Agricultural Laboratory University of Nebraska, near North Platte









A man with a beard and glasses, wearing a white shirt and a dark bow tie, is holding a large white sign in front of his chest. He is standing outdoors, with a white fence and green foliage in the background. The sign has handwritten text in black ink.

July 28, 1982
General
Photos





July 1982 Kirk Clawson (left) and Ramana Rao
Attaching the instruments to the boom truck,



**July 1982 Kirk Clawson taking leaf measurements
Blain Blad (blue hat) and Mike, the math teacher
Sandhills Agricultural Lab, near North Platte**



July 14, 1982. Kirk Clawson kneeling, Blad Blad on right. Other unknown



July 14, 1962 Kirk Clawson taking leaf measurements.



July 24, 1982 Blaine Blad. Sandhills Agricultural Laboratory
University of Nebraska, near North Platte









July 14, 1982, Blaine Blad kneeling





July 14, 1982 Blaine Blad taking leaf measurements.





1982. The "three wheeler" and the employee trailer
Sandhills Agricultural Laboratory, near North Platte.



1982. The Research Trailer. "C" area, looking south-east.
"Leaf Area Index" measurements were made here.
Sandhills Agricultural Laboratory, near North Platte.



July 1982 Technicians cleaning pipes used for neutron probe readings. Sandhills Agricultural Laboratory. The Lab Field Office is in the background.



June 1962. "D" area, looking west - late afternoon
Sandhills Agricultural Laboratory, near North Platte



1982. Ed Schwartz, cleaning the discs, in front of the Lab building
Sandhills Agricultural Laboratory, near North Platte.



May 28, 1982 Campbell Weather Station
The tractor shed is in the background
Sandhills Agricultural Laboratory, near North Platte



May 28, 1982 Campbell Weather Station, looking east from "C" area.
Sandhills Agricultural Laboratory, near North Platte



Wayne Gardner at the Univ of Nebraska's Sandhills Ag Lab, near North Platte. He worked during the summer of 1983, assisting his brother, Bronson with his Ph.D. project. These are two of his co-workers.



Wayne Gardner's co-workers at the University of Nebraska's Sandhills Ag. Lab. Wayne worked there the summer of 1983, assisting his brother, Bronson with his Ph.D. project.



1983 Wayne Gardner and Craig Daly
Sandhill Agricultural Laboratory, near North Platte, Nebraska



1983 Wayne Gardner
Sandhill Agricultural Laboratory, near North Platte, Nebraska



Wayne Gardner at the University of Nebraska's Sandhills Ag. Lab. He worked there the summer of 1983 assisting his brother, Bronson with his Ph.D. research project.



1983 Wayne Gardner and Craig Daly
Sandhill Agricultural Laboratory, near North Platte, Nebraska



1983 Wayne Gardner
Sandhill Agricultural Laboratory, near North Platte, Nebraska



Wayne Gardner at the Univ of Nebraska's Sandhills Ag Lab, near North Platte. He worked during the summer of 1983, assisting his brother, Bronson with his Ph.D. project.



1983 Wayne Gardner (with Craig Daly's arms)
Sandhill Agricultural Laboratory, near North Platte, Nebraska



**Wayne Gardner at the Univ of Nebraska's Sandhills Ag Lab, near North Platte.
He worked during the summer of 1983, assisting his brother, Bronson with his Ph.D. project.**



1983 Wayne Gardner
Sandhill Agricultural Laboratory, near North Platte, Nebraska



1983 Ed Schwarz, Craig Daly, Wayne Gardner
Sandhill Agricultural Laboratory, near North Platte, Nebraska



Wayne Gardner at the Univ of Nebraska's Sandhills Ag Lab, near North Platte. He worked during the summer of 1983, assisting his brother, Bronson with his Ph.D. project.



Wayne Gardner at the Univ of Nebraska's Sandhills Ag Lab, near North Platte. He worked during the summer of 1983, assisting his brother, Bronson with his Ph.D. project.



1983 Wayne Gardner, Craig Daly
Sandhill Agricultural Laboratory, near North Platte, Nebraska



Wayne Gardner at the University of Nebraska's Sandhills Ag. Lab. He worked there the summer of 1983 assisting his brother, Bronson with his Ph.D. research project.



Wayne Gardner at the Univ of Nebraska's Sandhills Ag Lab, near North Platte. He worked during the summer of 1983, assisting his brother, Bronson with his Ph.D. project.



CHRISTINE E GARDNER
102 EIRCH ST
VACAVILLE CA 95688
448-5987



Wayne Gardner at the University of Nebraska's Sandhills Ag. Lab. He worked there the summer of 1983, assisting his brother, Bronson with his Ph.D. project.



1983 September Wayne Gardner and Betty Walter, recording instrument readings.
Sandhill Agricultural Laboratory, near North Platte, Nebraska



1953 September Wayne Gardner and Betty Walker, recording instrument readings.
Sandhill Agricultural Laboratory, near North Platte, Nebraska



1983 September Wayne Gardner and Betty Walter, recording instrument readings.
Sandhill Agricultural Laboratory, near North Platte, Nebraska



1983 September Wayne Gardner and Betty Walter, recording instrument readings.
Sandhill Agricultural Laboratory, near North Platte, Nebraska



1953 September Wayne Gardner and Betty Walter, recording instrument readings.
Sandhill Agricultural Laboratory, near North Platte, Nebraska



1983 September Wayne Gardner and Betty Walter, recording instrument readings.
Sandhill Agricultural Laboratory, near North Platte, Nebraska



1983 September Wayne Gardner and Betty Walter, recording instrument readings.
Sandhill Agricultural Laboratory, near North Platte, Nebraska



1983. One of our research trailers. This was south of the lab building next to "C" area.
Sandhills Agricultural Laboratory, near North Platte.



1883, "D" area, looking east.
Sandhills Agricultural Laboratory, near North Platte.



1983. "C" area, looking east. Note the weather station.
Sandhills Agricultural Laboratory, near North Platte.



1983 Bronson Gardner, (bald on top) preparing for calibration
Sandhill Agricultural Laboratory, near North Platte, Nebraska



One of Bronson's Ph.D. research photos. Taken from the truck camera.
(very young corn)



One of Bronson's Ph.D. research photos. Taken from the truck camera.
(very young corn)



One of Bronson's Ph.D. research photos. Taken from the truck camera.
(very young corn)



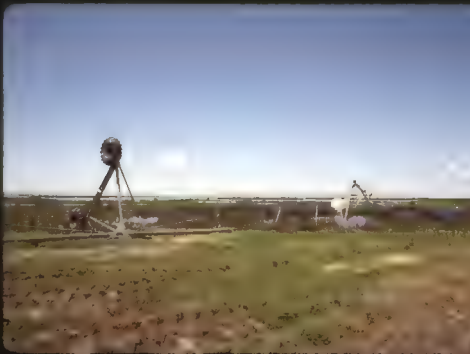
Bronson's Ph.D. research project. Blaine Blad on top of the truck.
Bronson is driving.



July 11-13. Melvin Keener (Bronson's new boss at SOHIO) taking infrared thermometer readings at the Sandhills Agricultural Lab near North Platte, Nebraska for a research project initiated by Bronson for SOHIO (eventually, SOHIO became part of British Petroleum)



July 11-13. Bronson, getting ready to take infrared thermometer readings at the Sandhills Agricultural Lab near North Platte, Nebraska for a research project initiated by Bronson for SOHIO (eventually, SOHIO became part of British Petroleum)



1984 - Thunderbolt Farm - Tornado damage to center pivot.

July - O'Neill Nebraska



July 1964 - Bronson at the Sandhills Ag Lab, measuring leaf water potential, for a research project initiated by his new employer, SOHIO (eventually, British Petroleum).



July 1984 - Bronson at the Sandhills Ag Lab, measuring leaf water potential, for a research project initiated by his new employer, SOHIO (eventually, British Petroleum).



July 1984 - Bronson at the Sandhills Ag Lab, measuring leaf water potential, for a research project initiated by his new employer, SOHIO (eventually, British Petroleum).



July 1984 - Bronson at the Sandhills Ag Lab, measuring leaf water potential, for a research project initiated by his new employer, SOHIO (eventually, British Petroleum).



July 1984 - Bronson at the Sandhills Ag Lab, measuring leaf water potential, for a research project initiated by his new employer, SOHIO (eventually, British Petroleum).



July 1984 - Bronson at the Sandhills Ag Lab, measuring leaf water potential, for a research project initiated by his new employer, SOHIO (eventually, British Petroleum).







July 1984 - Bronson at the Sandhills Ag Lab, measuring leaf water potential, for a research project initiated by his new employer, SOHIO (eventually, British Petroleum).



July 1984 - Bronson at the Sandhills Ag Lab, measuring leaf water potential, for a research project initiated by his new employer, SOHIO (eventually, British Petroleum)



July 1964 - Bronson at the Sandhills Ag Lab, measuring leaf water potential, for a research project initiated by his new employer, SOHIO (eventually, British Petroleum).









1980 - Bronson analyzing the multi-spectral images that were taken on July 15, 1980 over the Sandhills Agricultural Laboratory



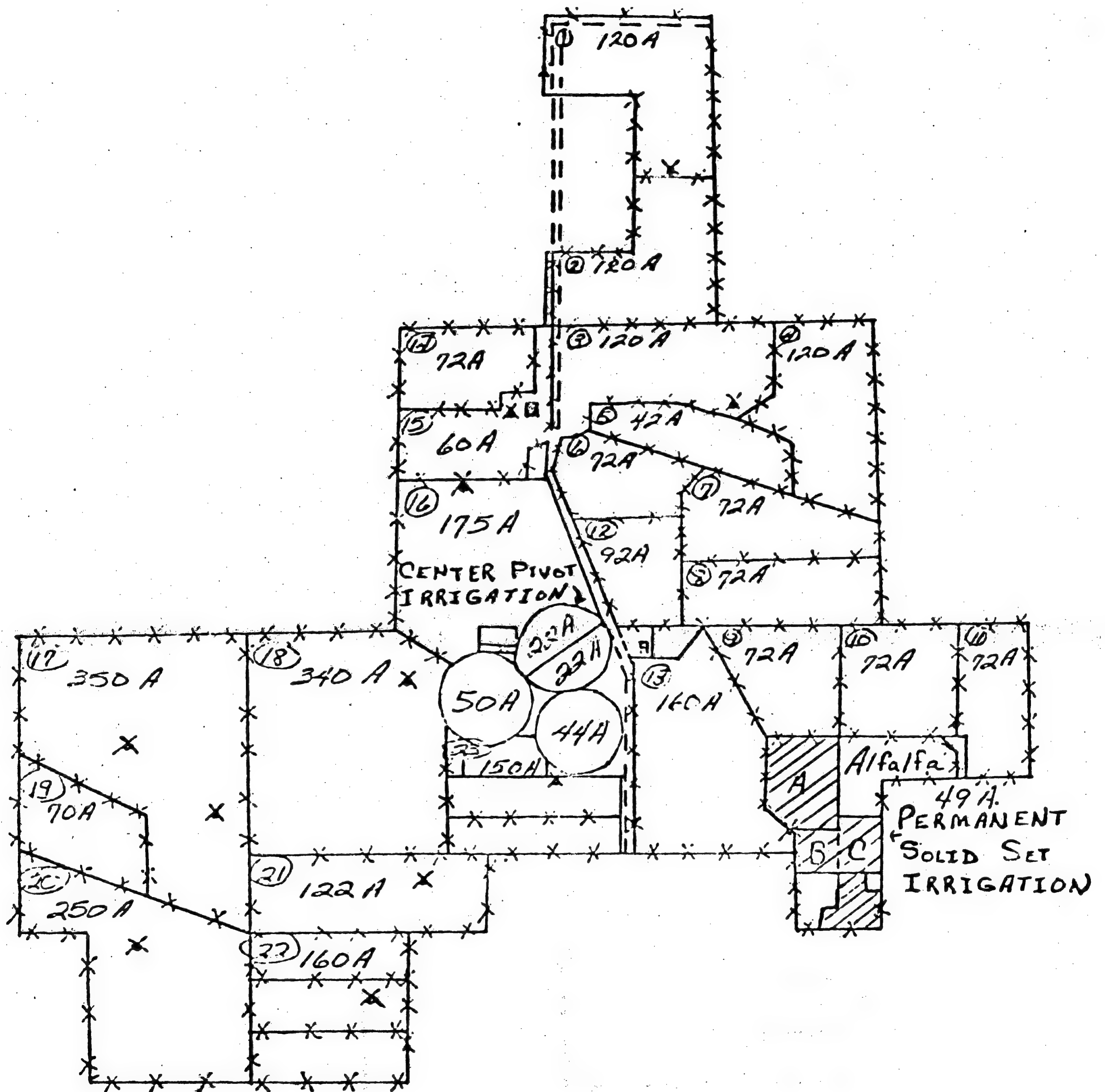
1980 - Blaine Blad analyzing the multi-spectral images that were taken on July 15, 1980 over the Sandhills Agricultural Laboratory

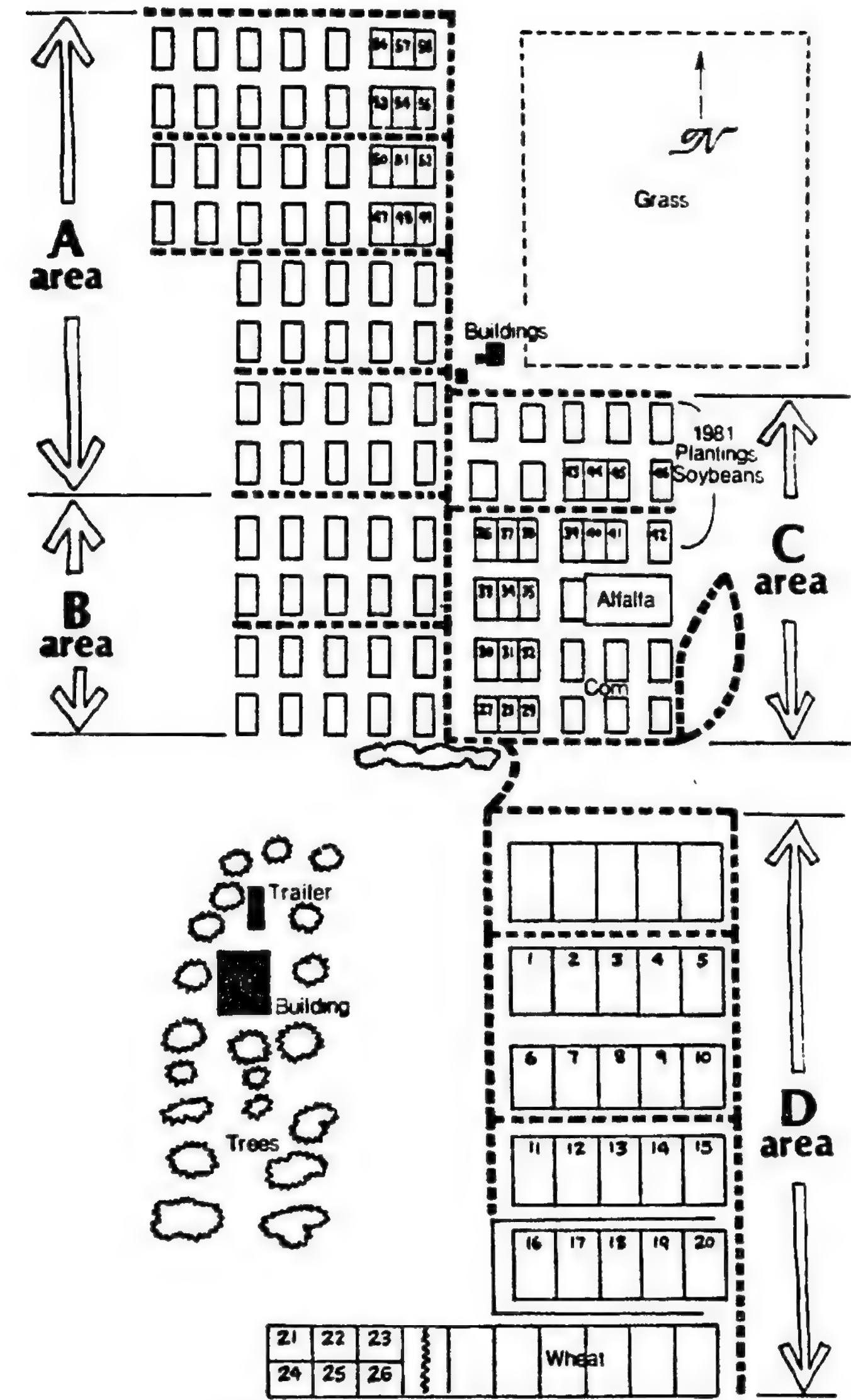


1980 - Ramana Rao analyzing the multi-spectral images that were taken on July 15, 1980 over the Sandhills Agricultural Laboratory



UNIVERSITY OF NEBRASKA
SANDHILLS AGRICULTURAL LABORATORY

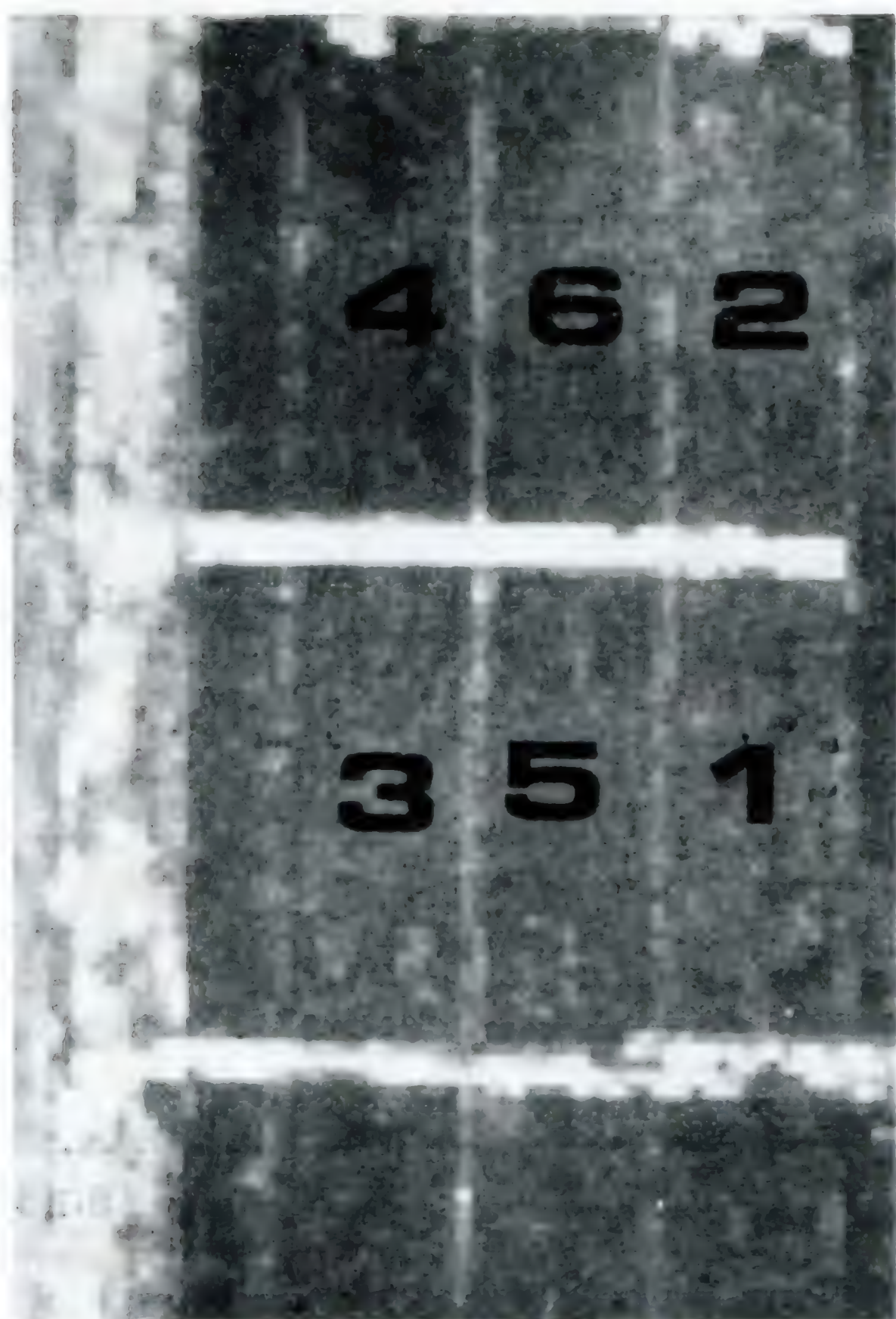




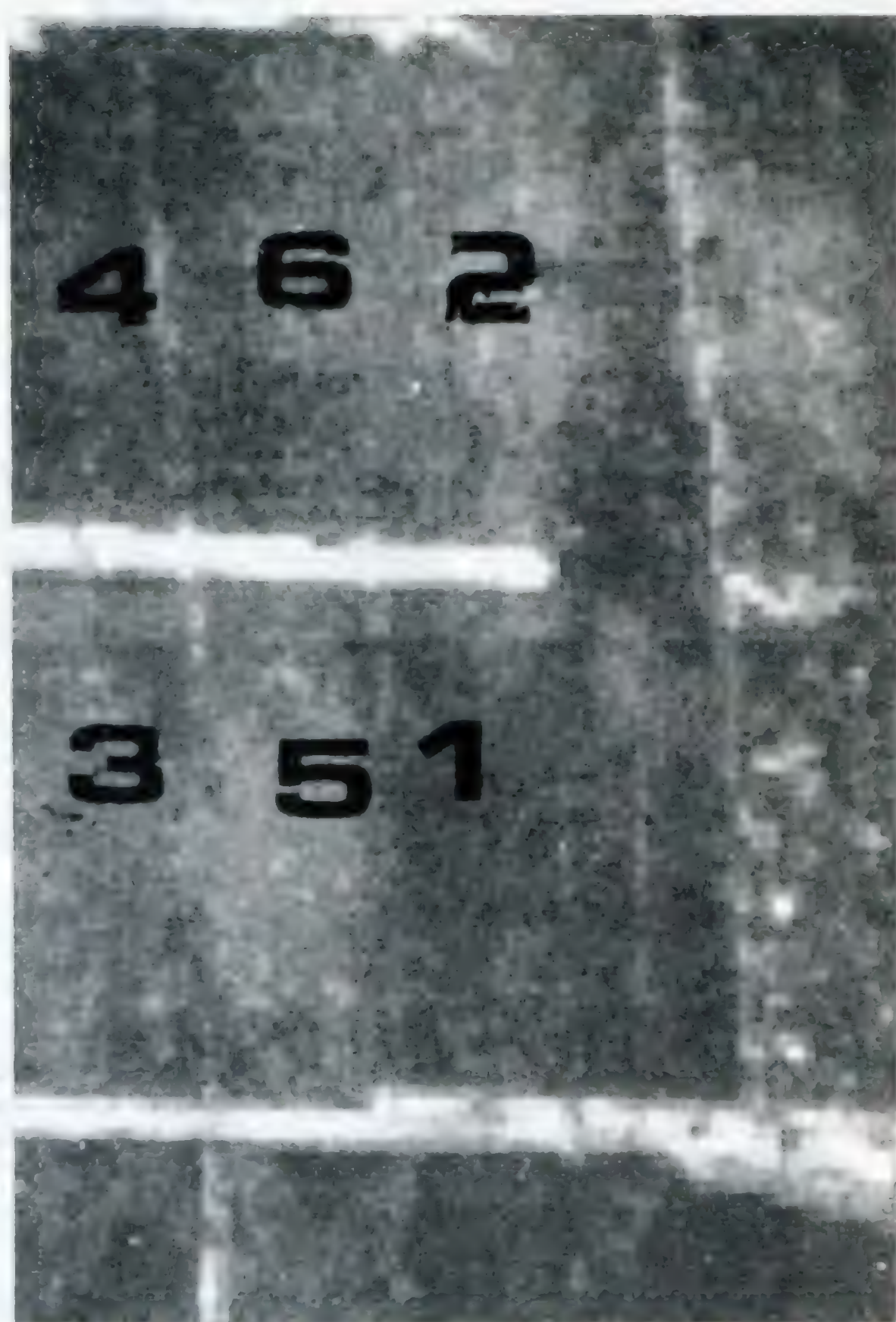
University of Nebraska
Sandhills Ag. Lab. Solid Set Irrigation

Solid set irrigation area of the Sandhills Agricultural Laboratory showing plot locations :

Latitude:41.626618 Longitude:-100.839648



JULY 20



AUGUST 30

Fig. 7. Thermal imagery (channel 11) for the Irrigation Scheduling plots (C area) on July 20 and August 30, 1979. The light colored lines running E-W are roadways between plots. Those running N-S are sprinkler lines between plots. Areas 1, 2, 3, 4, 5 refer to plots receiving different irrigation treatments (Chapter VII). The darker the color, the cooler the temperature.

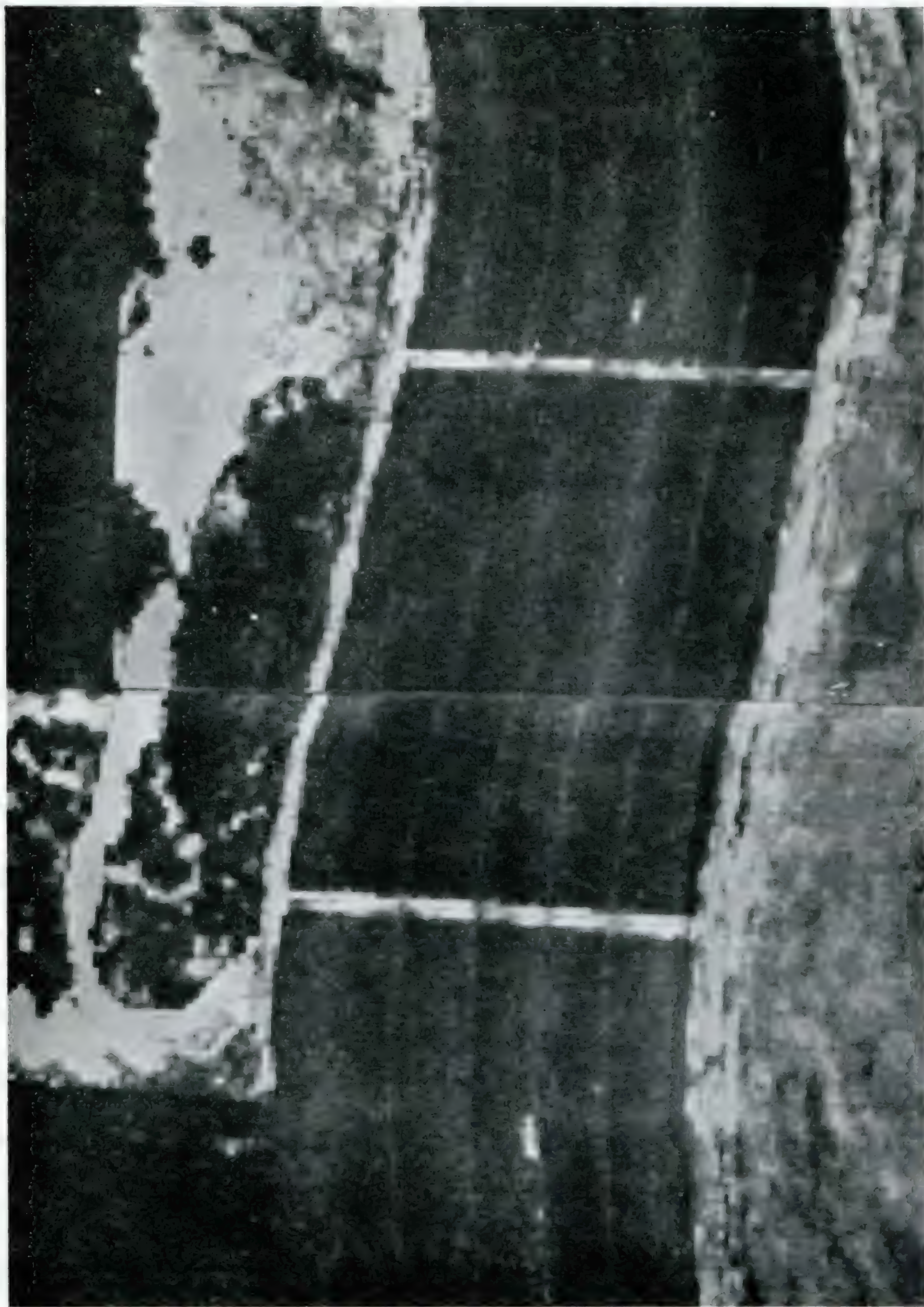


Fig. 11. Thermal imagery (Channel 11) of the water gradient treatments in area D on August 30, 1979. The two thin lines running N-S to the right and left of the center of the field are the irrigation sprinkler lines. The water gradients are applied on either side of these lines.



Fig. 14. Imagery from the temperature irrigation scheduled plots in C area. Data are from Channel 6 (0.62-0.66 μ m range) on August 30, 1979. The arrows show the problem area in the 3SMW plot (plot 2).



A

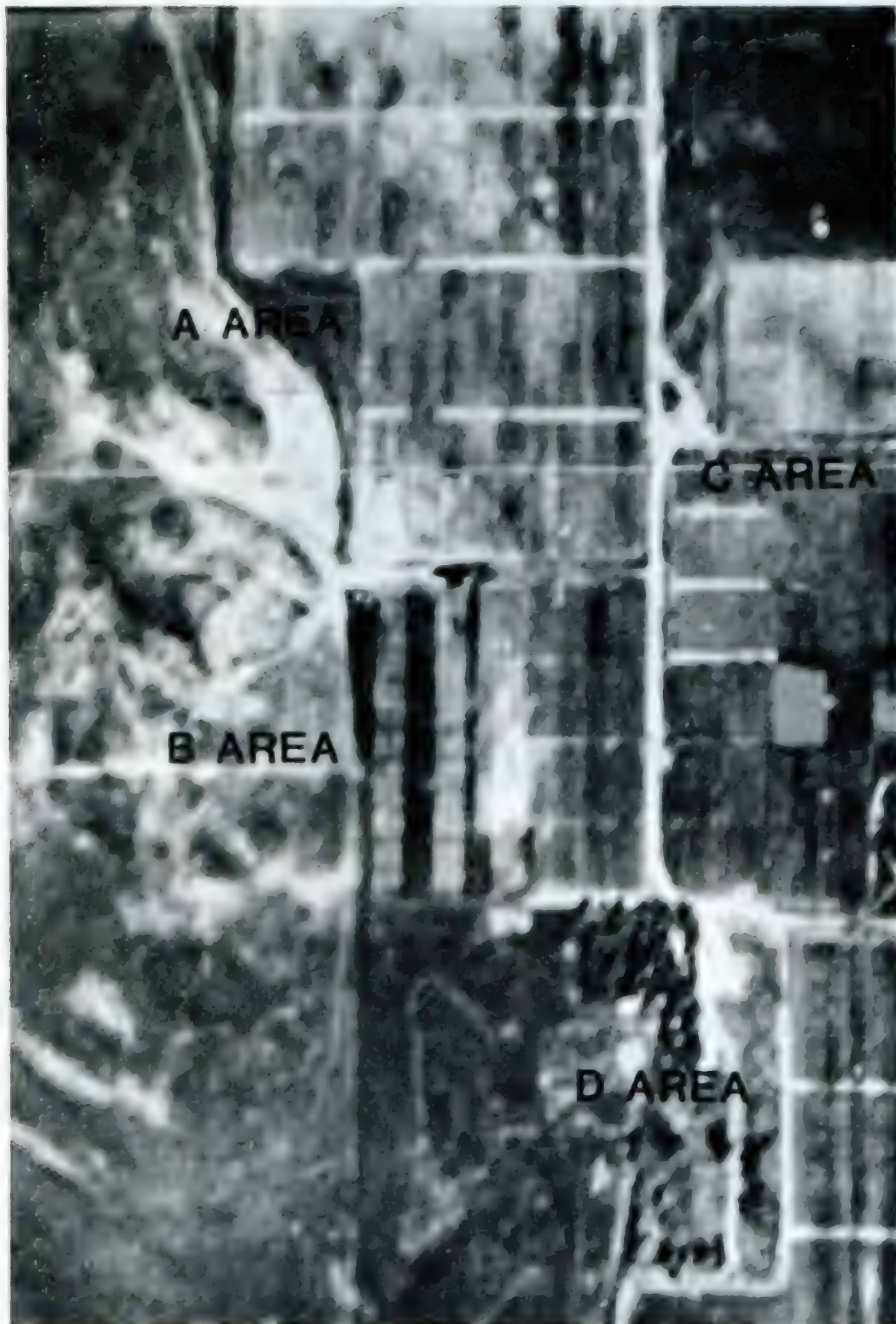


B

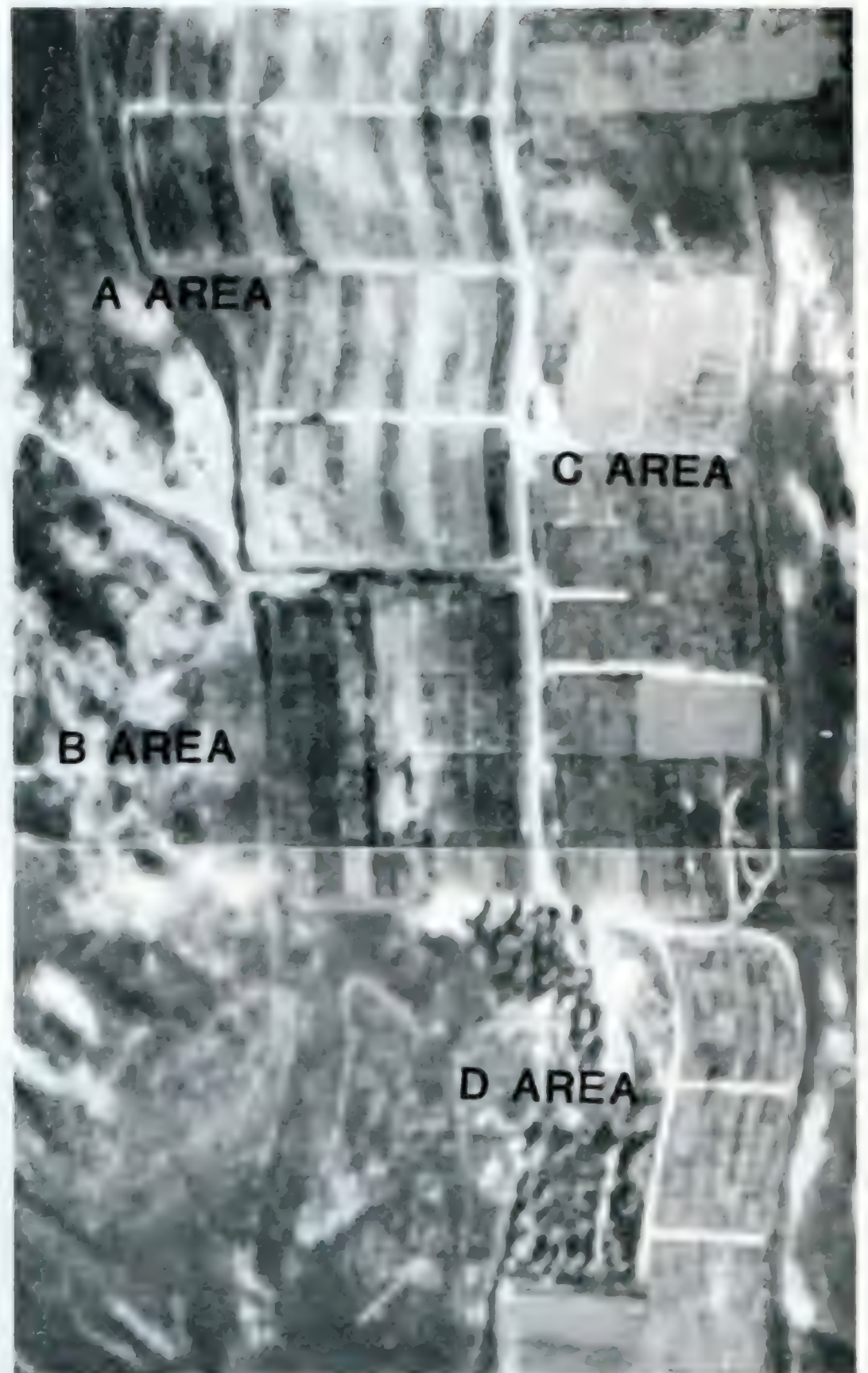


C

Fig. 6. Thermal imagery of irrigated and non-irrigated sorghum on August 26, 1974, at Mead, Nebraska. An irrigated plot is marked with an I and a non-irrigated plot with an N. The lighter the shade the cooler the temperature. A (1148 h), B (1613 h) and C (1817 h). All remaining areas were planted to non-irrigated sorghum. The lines forming distinctive tic-tac-toe pattern are tree shelter-belts.



JULY 20



AUGUST 30

Fig. 4. Three band color composite of the Sandhills Agricultural Laboratory on July 20 and August 30, 1979. Color assignments were: Blue - Channel 4; Green - Channel 6; Red - Channel 10. Due to the high cost of reproducing color photographs, the ones shown here are reproduced only in black and white. North is to the top of the page.

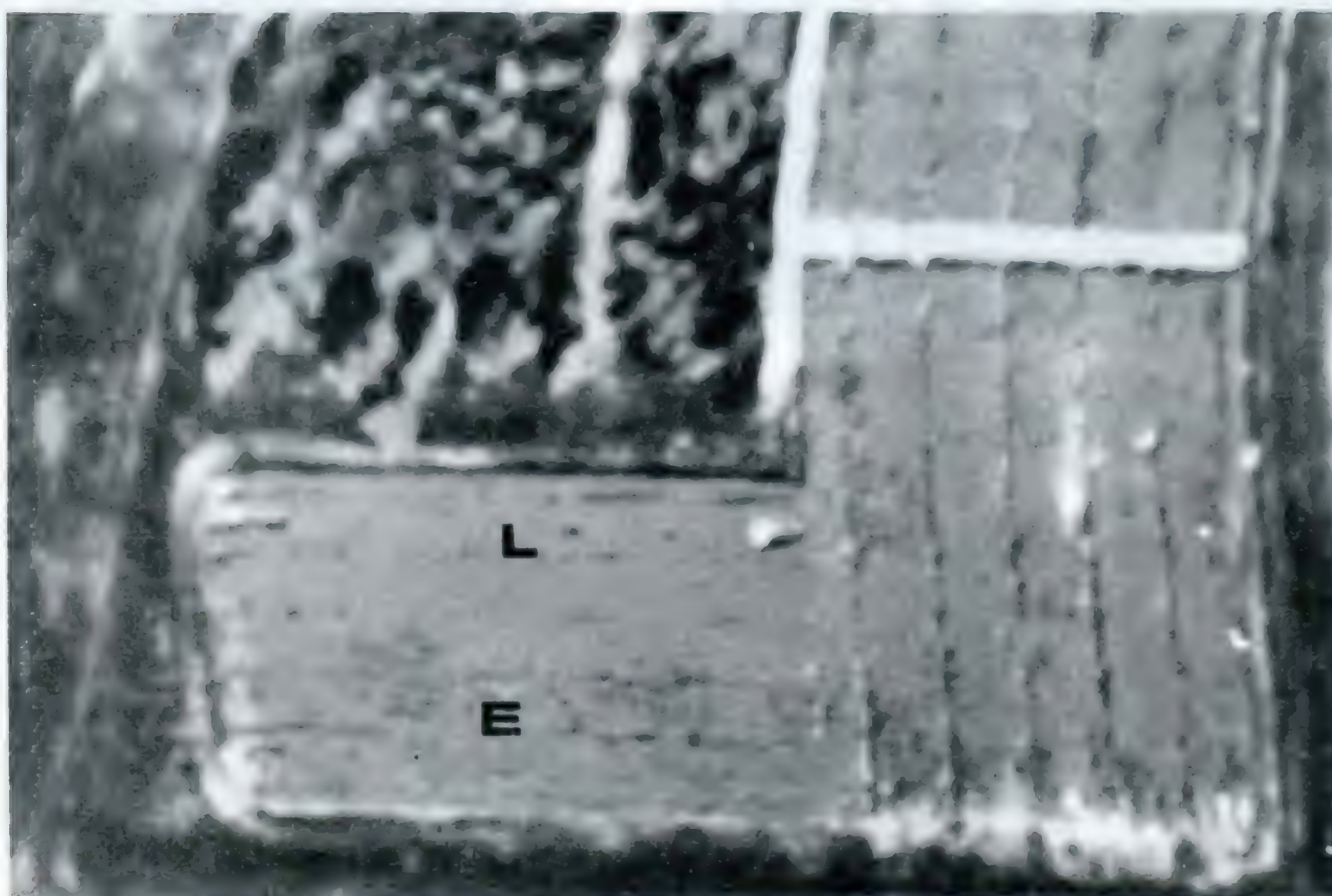
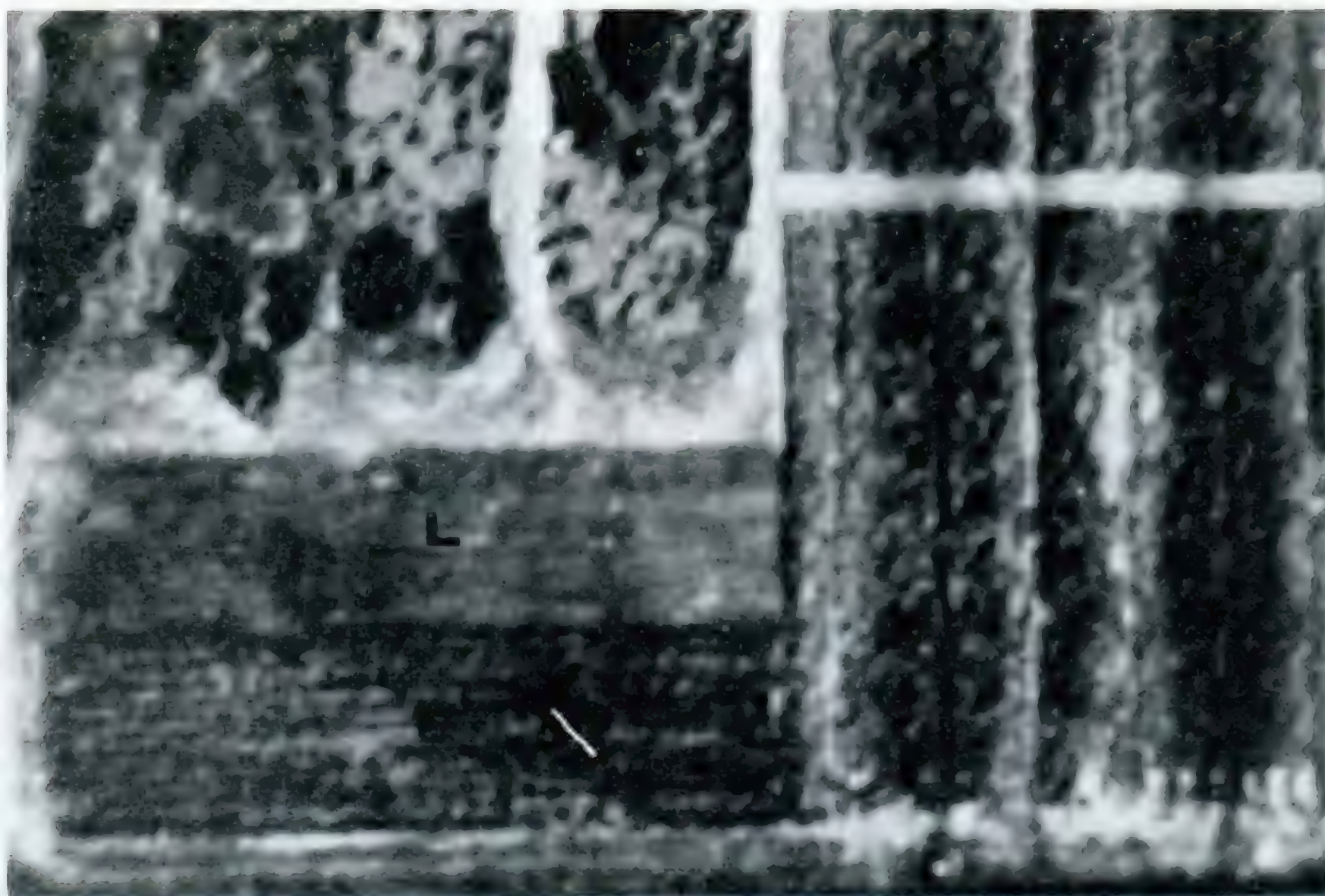


Fig. 5. Enlarged color composite of the south end of D area, showing the contrast between bare soil and a corn crop on July 20 (A) and August 30, (B) 1979. Color assignments were the same as in Fig. 4. Area L is late planted corn and area E is early planted corn.

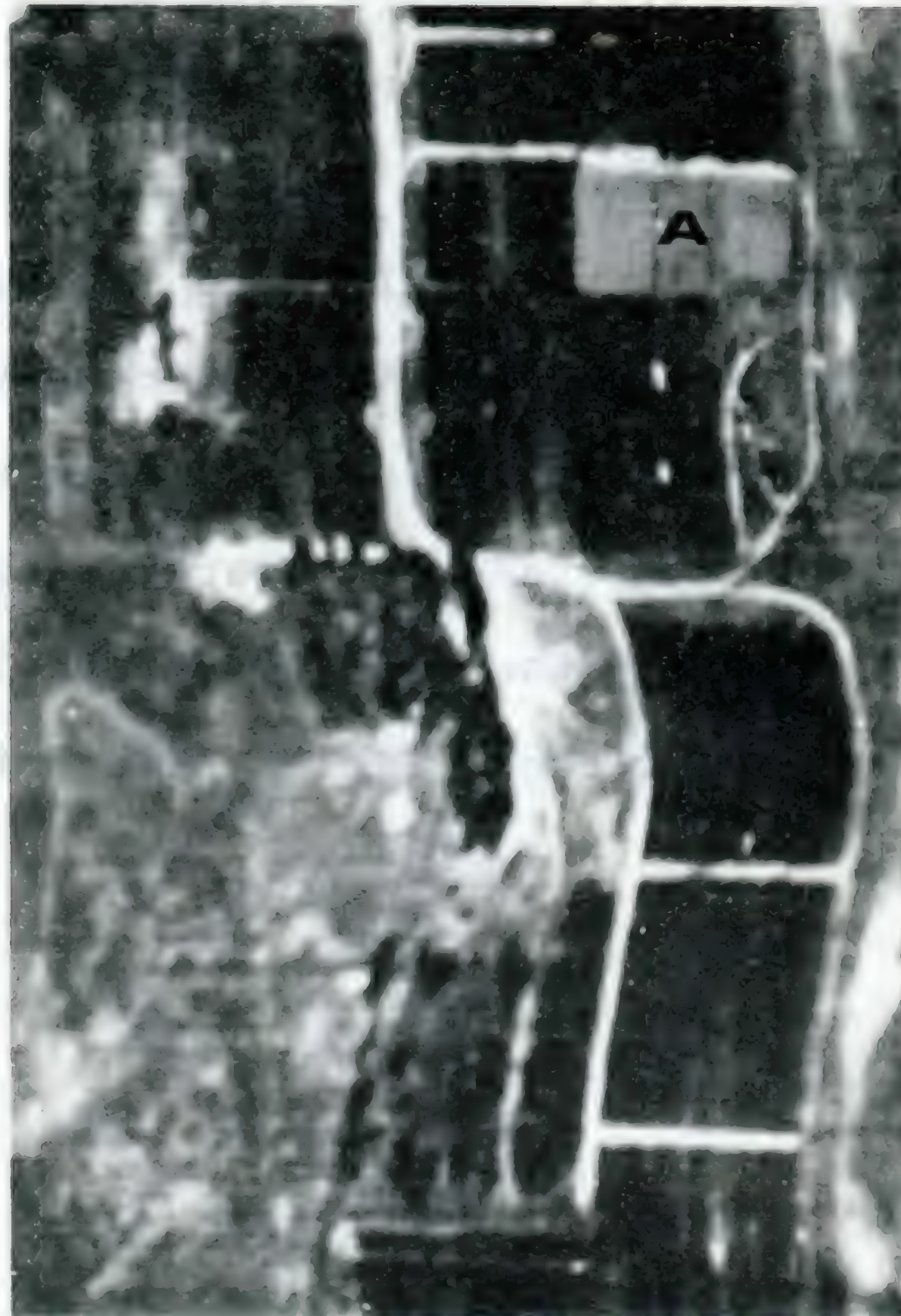


Fig. 1. Three channel color composite of the Sandhills Agricultural Laboratory for the August 30, 1979 data. Color assignments were Blue--Channel 11, Green--Channel 1, and Red--Channel 8. Alfalfa area is labeled A.

A thermal band image showing various agricultural fields. The image is a mosaic of different colors representing different temperatures. The colors range from dark red/purple (cooler) to yellow/green (warmer). The fields are arranged in a grid-like pattern, with some fields being larger than others. The overall image has a grainy, high-contrast appearance typical of thermal photography.

NITROGEN STUDY

SOYBEANS

WATER

ALFALFA

10.4-12.5 UM
SANDHILLS LAB
JULY 15, 1980
(THERMAL BAND)

STRESS STUDY

0.76-0.90 UM
D AREA AND PIVOT
SANDHILLS LAB
JULY 15, 1980



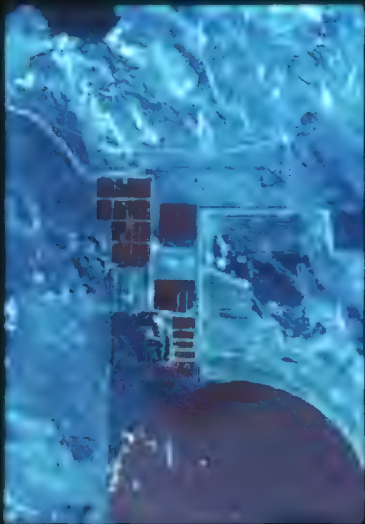




FIGURE 1. • LABEL 0: FACTOR 3

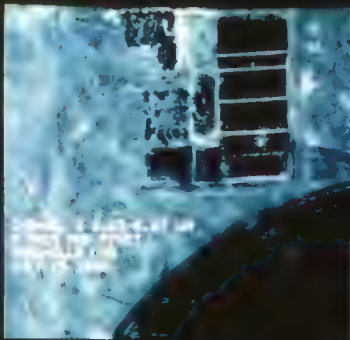




EXHIBIT 1 - LABEL BY FACTOR 2

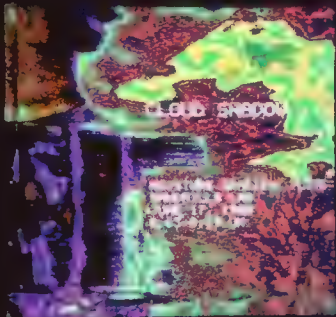
THE HILLS LINE

76-6.77
72-6.77
72-6.77

WET 50%

DRY 50%

WET 50%



1997

1998

1999

2000

2001

2002

1997
1998
1999
2000
2001
2002

1997
1998
1999
2000
2001
2002

SHIRLEY M. JONES
STATIONER & PRINTER
100 E. 1st St.
St. Paul, Minn. 55101
612-224-8000

7-4

WISCONSIN GRADIENT PLAYS
MATERIALS LAB
JAN 13 1999
1.10-1.50 UN

January 1994

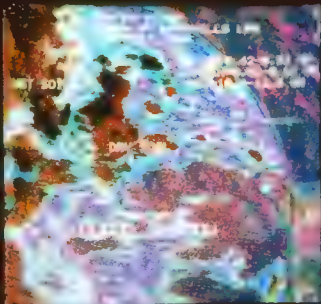
COLD SHOW

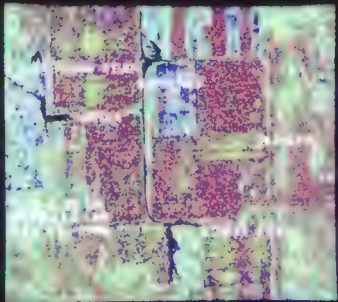
WINTER'S BEST KEPT SECRET IS THE BEST TIME TO VISIT THE COUNTRY'S MOST BEAUTIFUL SCENES. BY JEFFREY M. HARRIS



THE NEW YORK PUBLIC LIBRARY
ASTOR LENOX TILDEN FOUNDATION
500 5TH AVENUE
NEW YORK 10017

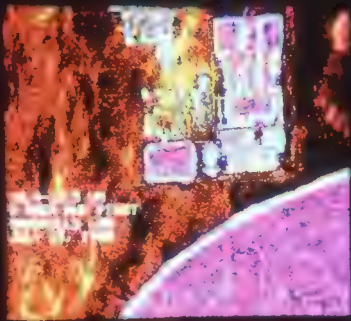
PLANO SUMMIT











FROM COLOR BRIDGE 1,2,3
JAY 18, 1900 SYDNEY'S LAB
D OWN AND CENTER PILOT

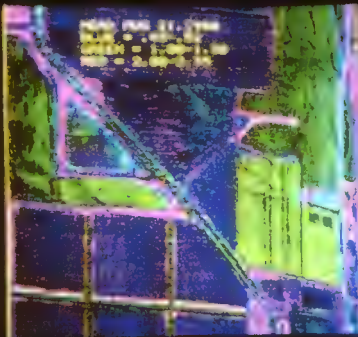


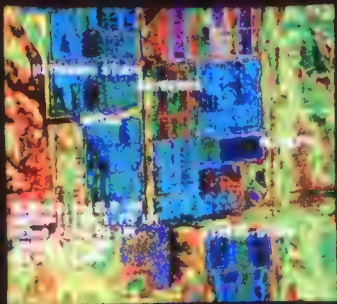
CLOUD SHADOW

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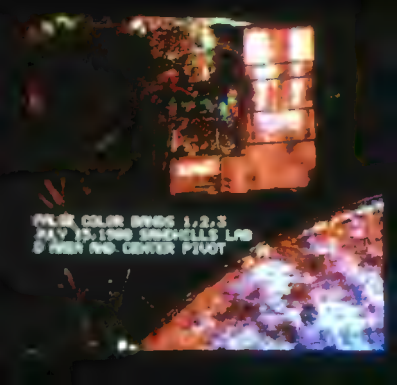
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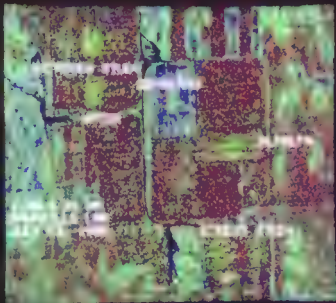


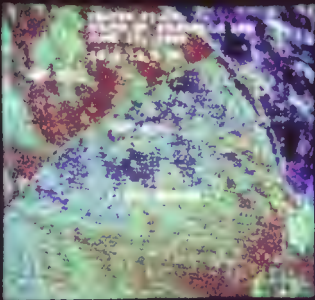


0.00-0.00 IN
D INCH TWO FEET
SMALLS LAW
JULY 18, 1900

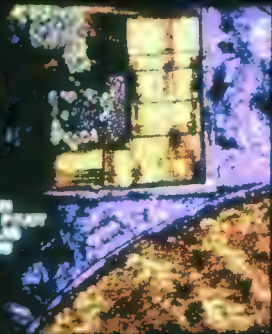


FILE COLOR BWSG 1,2,3
MAY 25, 1968 SMOKELESS LAB
D OPEN TWO CENTER PILOT

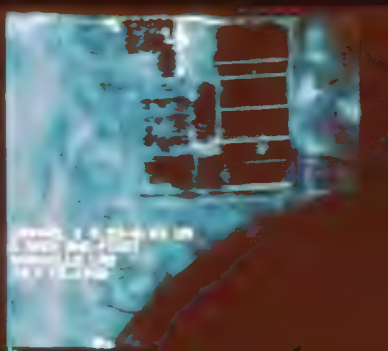


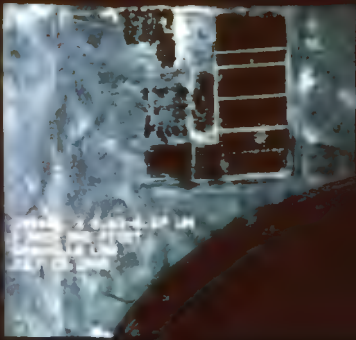


9.75-9.25 US
9.0000 700 0000
SMITHVILLE LAB
JULY 10. 1998

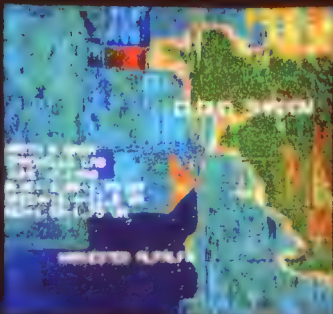


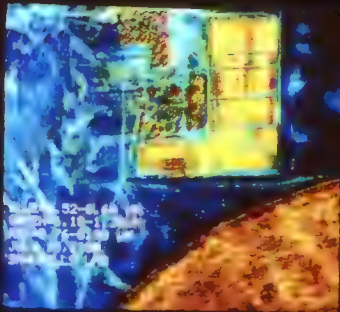






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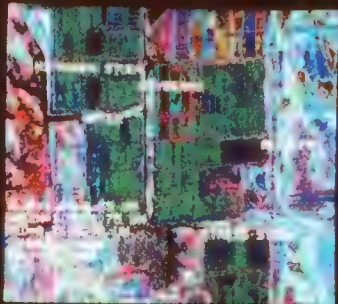
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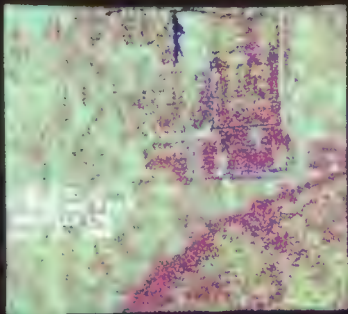
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88P0001C.1 - LABEL BY FACTOR 2


TEL: 2400

COMMISSIONER, ALABAMA





CHANNEL 1 0.52-0.62 UM
D AREA AND PIVOT
SANDHILLS LAB
JULY 15, 1988



CHANNEL 2 0.63-0.67 UM
D AREA AND PIVOT
SANDHILLS LAB
JULY 15, 1980



